
**COMMUNITY EMPOWERMENT PROGRAM
IN PINOGU SUBDISTRICT, BONE BOLANGO REGENCY,
GORONTALO PROVINCE, INDONESIA:
CONCERNING TO THE UNIQUE LOCAL BIODIVERSITY
CONSERVATION**

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ABSTRACT

First year of three year plan of Community Empowerment Program through Student Community Services (SCS) of Gadjah Mada University was conducted in Pinogu Subdistrict, Bone Bolango Regency, Gorontalo Province in 2013. Pinogu is located on top of hill and reserved as the National Park of Bogani Nani Wartabone and this protects some endangered species, such as Tarsiers and Megapodon birds. As the most remote area, Pinogu had not been touched equally by the central government, therefore it was less developed. Pinogu had been popular with coffee plantations since Dutch colonial periods. This plantations was now too old and became forest. This SCS Program was designed to empowered local people for agribusiness including rejuvenate coffee plantation and coffee production and to educate local people to be aware of local biodiversity and understand how to conserve the most endangered species, Tarsiers and Maleo. Twenty one of UGM students from different study programs had been coached and trained priorly by Field Instructure within 3 months with the SCS-thematic programs and leadership; then they were mobilized to Pinogu and stayed for 2 months conducting the program.

*Two main programs out of 7 SCS thematic programs were successfully conducted during SCS activity in Pinogu, Bone Bolango Regency. Coffee agribusiness programs from upstream to downstream processes were trained to local community who interested in coffee production twice a week by students and biodiversity conservation was taught to junior high school students. These SCS program achievements were including establishment of anursary, improvement of local people skills in manage coffee plantation, selection of mature seed, seed drying, and good coffee processing, and also establishment of a coffee producing community. Conservation education on local endemic and endangered species—Megapodon birds (*M. Maleo*) and Tarsiers (*T. Spectrum*)—to junior high school students was attracting some students who were really interested in learning more about fauna conservation and improve student awareness on endemic and endangered species as the main icon for foreign tourists who visited Bone Bolango. The success of the SCS-UGM programs were contributed by synergy of university and the local government financial support and students and field instructure commitment.*

Keywords: *community empowerment, coffee agribusiness, SCS UGM program, T. Spectrum and M. Maleo conservation*

ABSTRAK

Tahun pertama dari tiga tahun Program Kuliah Kerja Nyata (KKN), Pemberdayaan Masyarakat Universitas Gadjah Mada telah dilaksanakan di Kecamatan Pinogu, Kabupaten Bone Bolango, Provinsi Gorontalo pada tahun 2013. Pinogu terletak di atas bukit Taman Nasional Bogani Nani Wartabone yang melindungi berbagai satwa yang hampir punah, seperti Tarsius dan burung Maleo. Sebagai daerah terjauh, Pinogu hampir tidak tersentuh oleh program pemerintah kabupaten sehingga daerah tersebut kurang berkembang. Pinogu dikenal sebagai daerah perkebunan kopi sejak zaman penjajahan Belanda. Perkebunan kopi tersebut sudah sangat tua dan telah menjadi hutan. Program KKN didesain untuk memberdayakan masyarakat lokal melalui program agrobisnis kopi dari hulu sampai hilir dan mendidik masyarakat untuk mengerti dan memahami cara konservasi satwa yang hampir punah, khususnya Tarsius dan Maleo. Dua puluh satu mahasiswa UGM dari berbagai program studi telah dibekali oleh Dosen Pembimbing Lapangan (DPL) mengenai tema program dan jiwa kepemimpinan selama tiga bulan sebelum berangkat. Mereka kemudian diberangkatkan ke Pinogu dan tinggal selama dua bulan untuk menjalankan program KKN.

Dua program utama dari tujuh program KKN tematik telah berhasil dilaksanakan dengan baik melalui aktivitas KKN-PPM UGM di Kecamatan Pinogu, Kabupaten Bone Bolango. Pelatihan agrobisnis kopi dari hulu sampai hilir diberikan kepada masyarakat lokal yang berminat selama dua kali seminggu. Adapun pengetahuan tentang konservasi satwa diberikan kepada murid-murid SMP lokal. Hasil kegiatan KKN adalah terciptanya kebun bibit kopi; meningkatnya pemahaman masyarakat tentang perawatan kebun kopi, penyeleksian biji kopi yang masak, pengeringan biji, dan pengolahan biji kopi yang benar; dan terbentuknya masyarakat pengolah kopi. Pengajaran konservasi spesies yang terancam punah, seperti burung Maleo (*M. Maleo*) dan Tarsius (*T. Spectrum*) berhasil meningkatkan kesadaran dan pemahaman siswa SMP untuk mencintai spesies endemis yang dapat menjadi daya tarik wisata alam bagi turis mancanegara yang datang ke Bone Bolango. Keberhasilan program KKN-UGM tersebut didukung oleh sinergi pendanaan dari universitas dan pemerintah daerah serta komitmen mahasiswa dan dosen pembimbing.

Kata kunci: pemberdayaan masyarakat, agrobisnis kopi, program KKN-UGM, dan konservasi Tarsius serta Maleo

1. INTRODUCTION

Student Community Services (SCS) is a university wide curriculum in Gadjah Mada University, Yogyakarta, Indonesia. SCS assigned for third or fourth year students stayed within 2 months in the village and create program with community that dedicated to village development, which has been conducted since 1970s. As a learning program, ESD based concepts were inserted into SCS program. SCS has 3 different targets of learning: an individual learning (student learning), a community learning, and an institutional learning. SCS is designed for students who are in sixth or seventh semester, using SCL problem based learning approach, formed in a multidisciplinary group of students staying for 6 to 8 weeks in the village. During their staying in the village, students learned more interaction, leadership, and team work to give them experiential learning.

Bone Bolango is a recent regency developed in Gorontalo Province in 2003, located in the southwest of North Sulawesi (Fig. 1.). Total area of Bone Bolango regency is 1.984.54 km² with almost 50% of the area is dedicated for forest conservation area, the National Park of Bogani Nani Wartabone (BB Statistical Bureau, 2013). Biogeographically, Sulawesi Island is a

unique island that have mixture of flora and fauna communities between Asian and Australian types, between Wallace line, and Lyddeker linewith 15% of endemic fauna (Moss and Wilson, 1998). Whitten *et al.* (1987) and Kefßler *et al.* (2002) in Pitopang *et al.* (2004) agreed that biotic structure and composition of Sulawesi is very specific but species number is relatively low, therefore conservation of endangered species is a must. Vascular plants were predicted only 5.000 species, including 2.100 woody species. According to Moss and Wilson (1998), a higher variation of fauna in the Wallacea area is very distinctive shown, but not for floristic.

In term of total organism, Indonesia biodiversity is in the third rank world biodiversity after Brazil and Colombia (Supriatna, 2008), but plant biodiversity is one of eight tropical mega-biodiversity centers (Sastrapradja, 2010), with 38.000 species richness roughly and 55% of it is endemic species (Mitermeier *et al.*, 1999 in LIPI 2010). In 2003, Bappenas (National Plan Board of Indonesia) stated that biodiversity and species endemism in Indonesian bioregions are shown in table 1 (Sastrapradja, 2010). Prediction of species richness updated lately, showed that only 165 species mammals, 397 birds, 150 reptiles (Alamendah.Blog, 2009). In addition it is recorded that there were only 2.500 Mollusks, more than 2.000 fish, 700 macro algae, and 1.500 shrimps (Nontji, 2007 in Sastrapradja, 2010; Alamendah.Blog, 2009) in Indonesia.

Table 1. Species Biodiversity and Its Endemic in Indonesia Bioregions (Sastrapradja, 2010)

Island	Birds		Mammals		Reptiles		Plants	
Sumatra	465	(2)	194	(10)	217	(11)	820	(11)
Jawa-Bali	362	(7)	133	(12)	173	(8)	630	(5)
Kalimantan	420	(6)	201	(18)	254	(24)	900	(33)
Sulawesi	289	(32)	114	(60)	117	(26)	520	(7)
Nusa Tenggara	242	(30)	41	(12)	77	(22)	150	(3)
Maluku	210	(33)	69	(17)	98	(18)	380	(6)
Papua	602	(52)	125	(58)	223	(35)	1030	(55)

Source: Bappenas (1993, 2003). Figures in Brackets are Endemic Species

2. PROBLEMS AND GOALS

As the new emerging local government, there is a big challenge for the leader to balance between economic and social development without neglected the environment as the core requirement for sustainability. Within ten years Bone Bolango Regency had been supported by the central government through infrastructure, basic education, and health programs from the Ministry of Less-Developed Area. One of promising economical development in Bone Bolango was gold mining plant that at present attracting more human resources (BB Statistical

Bureau, 2013), beside the gimmick of instant money, no special skill or education required to be field worker. This makes some farmer abandon their lands and shifted their job to mining.

To anticipate this problem, a community empowerment program on agribusiness based on local commodity (coffee, cocoa, palm plantation), and ecotourism based on local biodiversity (Maleo and Tarsius) were introduced through UGM community empowerment programs within 3 years.

3. METHODS

3.1 Survey and Workshop with Government Authority

A long term development plan for Bone Bolango had been reviewed with some UGM ESD experts and a special workshop about ESD concepts was conducted in December 2012 followed by all government authorities, to support, revise, and direct long-term development plan of Bone Bolango Regency.

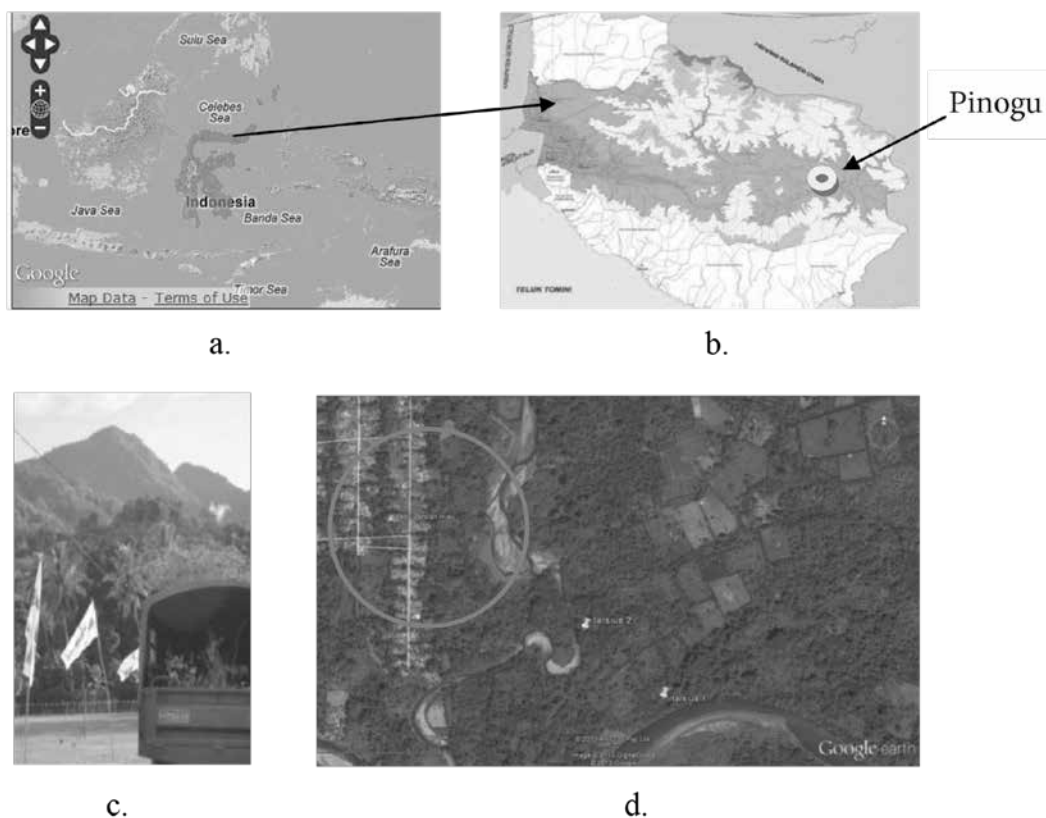


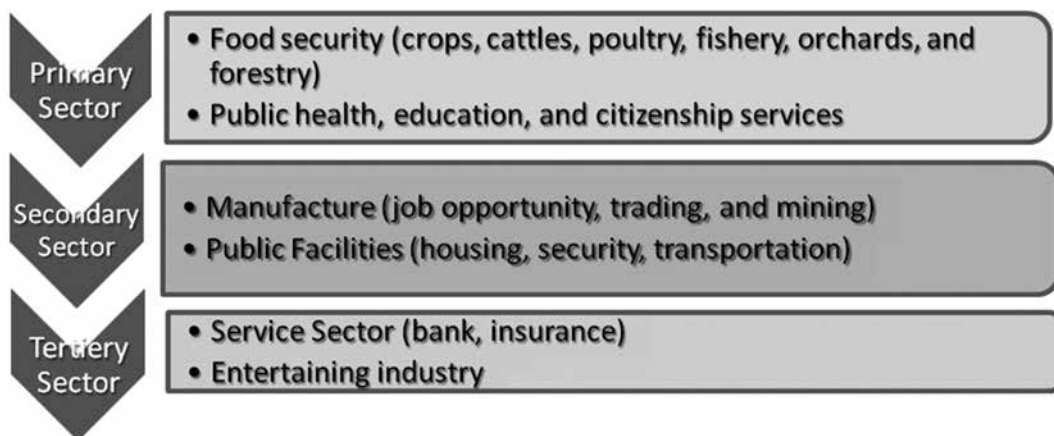
Fig.1. a. Geographical Map of Bone Bolango Regency
b. Location of Pinogu Subdistrict
c. Part of NP. Bogani Nani Wartabone
d. Google Earth of Pinogu Subdistrict Where the SCS Conducted

The long-term goals of 5 year plan in Bone Bolango Regency summarized as follows.

1. Improve community welfare through:
 - a. improvement of public services in education and community health;
 - b. strengthen economical development in the village and local competitiveness;
 - c. reduce poverty; and
 - d. developed village growth and growth area connecting between regency.
2. Improve infrastructure:
 - a. Improvement of regional infrastructure.
 - b. Maintenance and improvement public facilities.
3. Improvement of public services through government reformation and good governance.

3.2 Program Activity Plan

During the workshop, we urge the government to prioritize the primary and secondary sectors rather than directly to the tertiary sector, to assure food security, health, and basic education for the local people, especially people in the remote area such as in Pinogu.



3.3 SCS Program Preparation

3.3.1 Student Selection

SCS Student recruitment was announced 4—5 months through students network (FB) in advance following the special criteria (healthy, mountaineer, dedicated, especially from agriculture, animal husbandry, biology, agriculture technology, veterinary, and forestry).

3.3.2 Student Coaching

Student preparation was conducted 2 months before mobilization, they meet every week in order to have cohesivity and give them enough time to find scientific material for training and create some solid programs based on the problems. One of the student and I as the Field Instructure were lucky to had chance to visit Bone Bolango before, during the

Biodiversity Expedition with Kopassus (Indonesian special army) in March—June 2013. Experience and biodiversity findings during expedition and connection with key person of the local people were very helpful to initiate the SCS program.

Beside the thematic program, students were also trained in social approach, leadership, and communication with local government authority by the instructor, and students were free to develop their supporting programs to the main program.

4. RESULTS AND DISCUSSIONS

There were 2 main SCS programs and some supported programs that had been prepared by students. Achievements of these programs were summarized in the table below.

Table 2. SCS Programs and Its Outputs Carried Out in Pinogu, 2013

No.	Programs	Objectives	Outputs
1.	Training on Biodiversity and conservation of Tarsier (<i>Tarsius Spectrum</i>) and Megapodon to primary and secondary school students and their teachers	Biodiversity awareness and concern to endemic endangered species to students	a. Student interests in local on endangered species b. Poster c. Documentations and recommendation
2.	Training on coffee agribusiness (seedling preparation, plantation management, product processing, branding & marketing) to local society	Training local people skills on know how of coffee agribusiness, such as: a. seedlings preparation b. harvesting, selecting, processing	a. Skill improvement of local farmers b. Nursery c. Poster of guideline for fertilization d. Poster of processing e. Documentations
3.	Producing Thematic (land-use, administrative, population) Map	To provide some important maps for local authority	a. Thematic maps b. Documentations
4.	Inventarization of local herbs for medicine and socialization to local housewife	To train local people on some alternative medication for daily first aid purpose	a. Book of medicinal local herbs b. Documentations
5.	Training on making biofertilizer from organic wastes	People understanding on the use of some organic wastes for fertilizer	a. Documentation of demonstration in making biofertilizer b. Improve farmer's skill
6.	Communal farm and cattle feed management	To improve breeder's habit for better cattle breeder	a. Skill improvement on cattle breeding in a communal farm b. Understanding more the need of green feeding (legumes and grasses) and health check
7.	Health check for cattle to improve its growth and productivity	To improve awareness of potential economic gain with better cattle breeding	

The SCS had been conducted from July 1st to August 30th 2013 and 21 students were mobilized to Pinogu subdistrict, Suwawa, Bone Bolango Regency, North Sulawesi. Journey took 2 days in total. They travelled from Yogyakarta to Jakarta by bus, spent overnight in Jakarta, and early morning flew from Jakarta to Gorontalo that took more than 6 hours transit via Ujung Pandang. They stayed 2 days in Gorontalo to have local coaching and get enough rest before long journey to Pinogu. Then they went to Suwawa, this took 2 hours by car, and overnight in Suwawa. Early morning at 04.00 am they walked to National Park (NP) Bogani Nani Wartabone that took for almost 12 hours to reach the place, even though all their baggages sent using special motorcycle, due to difficult road (Fig. 2.). Since Pinogu is located on top of the NP Bogani Nani Wartabone, therefore student mobilization took longer time.



Fig. 2. Student's Journey from Yogyakarta to Pinogu, Bone Bolango

Two main programs conducted in Pinogu during SCS, these are (1) coffee based agribusiness, including rejuvenate local coffee species (*C. liberica*) that had been neglected for decades, and educate society in coffee production and (2) early ecotourism baseline study, habitat analysis for Maleo and Tarsius conservation and also community education on the unique fauna.

4.1 Coffee Based Agribusiness

Student managed a field workshop on coffee plant management, how to apply fertilizer, handle pest and producing coffee with farmers, supported with UGM visiting professor (fig. 3).



Fig. 3. Coffee Based Agribusiness, Start from Plant Management, Seed Collecting, Selecting, Drying, Roasting, Grinding, and Packaging as well as Seedling Preparation

Coffee plantation in Pinogu had been planted since Dutch colonial period, and it had not been taken care ever since until the plantation become forest with full of weed underneath. Mostly, farmer in Pinogu didn't know how to manage coffee plantation in a proper way, how to apply fertilizer efficiently, and they still prepare coffee traditionally. The coffee workshop was designed to make farmer understand the right way to conduct from upstream to downstream business of coffee. The local market was actually promising and it is going to increase at the same time of eco-tourism in NP Bogani Nani Wartabone increase for conservation area for Maleo, Hornbills, and Tarsius.

4.2 Habitat Analysis for Maleo and Tarsius Conservation

During expedition with special Indonesian army in Pinogu (March, 2013) it has been spotted tarsiers (*Tarsius Spectrum*) and Megapodon, Maleo (*Macrocephalonmaleo*), which are endemic species from Sulawesi and they are IUCN listed as endangered species (Bird Life International, 2013). Maleo habitat is concentrated close to the geothermal area in Hungayono Maleo Hatchery and Conservation Area (foothill of Pinogu 100—200 m asl). Tarsiers' habitat is about 589 m eastern away from Pinogu, a secondary forest dominated with bambusa and ficus. As a nocturnal fauna, tarsiers cannot be seen easily during the day, and in 2 habitats above we can found 7 lifetarsiers, six adults and one juvenile, and one adult was dead.



Fig. 4. Some Unique Species (Maleo, Tarsier, and Hornbill), Their Habitats, Maleo's Egg, Some are Endangered Species, and Biodiversity Socialization to Secondary School Students (Flora Fauna Report, Expedition NKRI, 2013)

During SCS program, we continued to disseminate our findings to the local people in order to show them what is needed to conserve both endemic species. We also gave them presentation from the other success story from Tangkoko which was able to culture tarsiers and this had finally attracted more than 5000 international tourists to visit Tangkoko nature reserve every year (*Tribun Manado*, June 2013). During the presentation and training as ecotourism guide, we noted that there are 3 local persons who are really interested in biodiversity conservation, their names are Jeffry, Sako, and Taufik Nadjamuddin whom needed to be trained as a professional wildlife guide like in Tangkoko nature reserve. Through this activity we hope some local young leader interested to continue this ESD program, a biodiversity conservation, and coffee industry using ecotourism leverage program raise the special icon from Bone Bolango, Pinogu coffee and tarsiers.

5. CONCLUSION

During 8 weeks SCS activities in Pinogu Subdistrict of Bone Bolango Regency, two main planned programs out of 7 SCS programs were conducted successfully with local community. These successes were contributed by student and field instructure commitment, university and local government financial support and commitment, communication and selection of local key-person, and also good survey and thematic SCS program preparation that had been done before SCS activity start. Language was the main obstacle doing empowerment in the field, unless we have local people as interpreter and we suggest long term (2—5 years) SCS thematic program in a specific district will give more benefit to the local people.

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